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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,465	02/12/2002	Masakazu Furukawa	215648US0PCT	4689

22850 7590 07/22/2003

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EXAMINER

PAIK, SANG YEOP

ART UNIT	PAPER NUMBER
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3742

DATE MAILED: 07/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/926,465

Applicant(s)

FURUKAWA ET AL.

Examiner

Sang Y Paik

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 13-16 is/are pending in the application.
- 4a) Of the above claim(s) 14-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10 and 13 is/are rejected.
- 7) ☐ Claim(s) 8 and 9 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-9 and 13, drawn to a hot plate, classified in class 219, subclass 465.1.
 - II. Claims 14-16, drawn to a method, classified in class 29, subclass 610.1.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such using adhesives such as glues to attach the resistance layers.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Mr. Pereira on or about 7/11/03 a provisional election was made without traverse to prosecute the invention of I, claims 1-9 and 13.

Affirmation of this election must be made by applicant in replying to this Office action. Claims 14-16 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the

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currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Takikawa et al (US 4,574,292).

Takikawa et al shows a hot plate including a ceramic substrate with a resistance element having a thickness within 1 um or less. With such range, the thickness dispersion would be within the claimed dispersion range.

DETAILED ACTION

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okuda et al (US 4,804,823).

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Okuda et al shows a hot plate including a ceramic substrate made of a nitride ceramic with a resistance element having the thickness of 3 to 40 microns. Okuda et al does not explicitly show the recited thickness dispersion of the resistance element being within the claimed range.

However, Okuda et al shows various heating element compositions having the thickness that varies between within 1-4 microns yielding varying resistance values. It is also shown that the resistance elements having similar compositions also have varying resistance values with varying thickness within 1 micron of each other (see Sample No. 2 and 3 of Table 1). In view of such teaching, it would have been obvious to one of ordinary skill in the art to provide the heating element having a uniform or same thickness, within claimed dispersion range, to provide a uniform resistance values so that a uniform heating can be generated.

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okuda et al as applied to claims 1-5 and 13 above, and further in view of Morita et al (US 5,118,983).

Okuda et al discloses the hot plate claimed except the resistance element being made of noble metals.

Morita shows a hot plate made of nitride ceramic with a resistance element made of TiN, W as well as noble metals such as Pt. It would have been obvious to one of ordinary skill in the art to adapt Okuda et al with the resistance element made of noble metals such as Pt as an alternative element that can also produce stable electric resistance at high temperatures.

11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okuda et al as applied to claims 1-5 and 13 above, and further in view of Fennimore et al (US 3,576,722) or DiGiacomo et al (US 5,442,239).

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Okuda et al discloses the hot plate claimed except the resistance element is made of a multilayer structure.

Fennimore et al shows a multilayer resistance pattern deposited on a ceramic substrate having a titanium layer being the first layer deposited thereon with additional layers such as copper and gold being deposited on the titanium layer. Fennimore et al teaches that the titanium layer serves as a good adhesion layer to the ceramic substrate. DiGiacomo et al also shows a multilayer structure with a titanium or chromium layer being the first layer deposited on the ceramic substrate. DiGiacomo et al teaches that such multilayer structure provides low stress, minimal corrosion and strong adhesion to the ceramic substrate.

In view of Fennimore et al or DiGiacomo et al, it would have been obvious to one of ordinary skill in the art to adapt Okuda et al with a multilayer structure with titanium or chromium being the layer nearest to the ceramic substrate to provide a resistance layer that provides low stress and corrosion while providing strong bonding of the resistance layer to the ceramic substrate.

Allowable Subject Matter

12. Claims 8 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Y Paik whose telephone number is 703-308-1147. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Teresa Walberg can be reached on 703-308-1327. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9302 for regular communications and 703-872-9303 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0861.

S. Y. Paik

Sang Y Paik
Primary Examiner
Art Unit 3742

syp
July 18, 2003